BUSHRANGER

Bushranger 500SF / 650SF Lawnmower Assembly and Owner's Manual

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WARNING! Read this manual before operating your BUSHRANGER Lawnmower.

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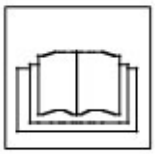
MEANING OF THE SYMBOLS SHOWN ON THE MOWER

Warning



Read Operating Instructions before starting operations

Be careful of object thrown from the lawnmower

Keep other people away from the danger zone

Disconnect spark plug before carrying out any maintenance

Danger - Keep hands and feet away from cutting blades

Be careful of hot surfaces

Danger- Do NOT touch hot surfaces

SAFETY SIGN:

CAUTION A caution indicates precautions that must be taken to avoid injury to the operator or any bystander, or damage to your mower.

This sign is used to indicate important information for your safety and to prevent damage.

TRAINING:

CAUTION Read this manual before using the lawnmower. It is essential that operators study it for their own and others safety.

1. Read the instructions carefully. Be familiar with the controls and use of the equipment.
2. Know how to stop the lawnmower and disengage the controls quickly in an emergency.
3. The operator or user is responsible for accidents or hazards occurring to other people or property.

TRAINING:

4. Never allow children or people unfamiliar with these instructions to use the lawnmower.
5. Never operate the lawnmower while people or animals are nearby.
6. While mowing, always wear substantial footwear and long trousers. Do not operate the lawnmower when barefoot or wearing open sandals.
7. Never operate the lawnmower with defective guards, shields or without safety protection devices in place and in good working order.
8. Do not operate the lawnmower in a confined space where dangerous carbon monoxide fumes can collect.
9. Never cut grass while walking backwards.
10. Always wear suitable eye & ear protection when operating the lawnmower.
11. Mow only in daylight hours or in good artificial light.
12. Never lift or carry the lawnmower while the engine is running.
13. Keep hands and feet well clear of rotating blades and components.
14. Always stop the engine when you leave the lawnmower unattended and when crossing roads, pathways or gravel drives.
15. Never mow without the catcher fitted or the rear flap in the closed / down position.

PREPARATION:

16. Thoroughly inspect the area where the lawnmower is to be used and remove all stones, sticks, wires, bones and any other foreign objects.
17. When mowing on slopes, only mow across the face, never up and down. Exercise extreme caution when changing direction. Do not attempt to mow excessively steep gradients. A 15° incline is the maximum recommended.

OPERATION:

18. General
    - Check that the lawnmower is in good working order before using.
    - Do not adjust throttle or governor settings, as this will have a detrimental effect on the mowers cutting ability and ultimately shorten the lawnmower's working life.

19. Lawnmower Body
    - Visually inspect to see that the cutting blade(s), blade bolts and cutting disc are not worn or damaged.
    - Regularly check that all nuts, bolts, linkages and connections are tight and secure.
    - Repair or replace excessively worn or damaged components with genuine Spare Parts only.

20. Fuel
    - Add fuel before you start mowing.
    - Refuel and lubricate outdoors only.
    - Only remove the fuel cap or add fuel while the engine is stopped.
    - Thoroughly clean any fuel spillages before starting the engine.
    - After refueling or topping up with engine oil, ensure that the filler caps are replaced securely.
    - Store fuel in a cool place away from direct sunlight in a suitable container.

21. Engine, Drive & Blade

    Stop the engine and disconnect the spark plug before attempting to:
    - Clean the mower.
    - Unblock the cutting mechanisms.
    - Carry out maintenance or repairs.
    - Inspect the mower if abnormal vibrations occur or after striking a foreign object.

COMMISSIONING THE LAWNMOWER

Open the carton and remove the lawnmower and its accessories, you will find:

- 1 x Rotary Mower.
- 1 x Top grass catcher
- 1 x Bottom grass catcher
- 1 x Mulch plug (if applicable)
- 1 x Owner's manual
- 1 x Engine manual.

Take precautions when doing this to ensure that you do not put undue stress on your back when lifting from the carton. It is recommended that two people lift out the mower to prevent injury or use a suitable hoist, if available.

ENGINE INFORMATION:

Refer to the separate Engine Manufacturers Owners Manual (supplied with every rotary mower) that accompanies this booklet and carry out all of the safety checks before proceeding with the commissioning of the mower.

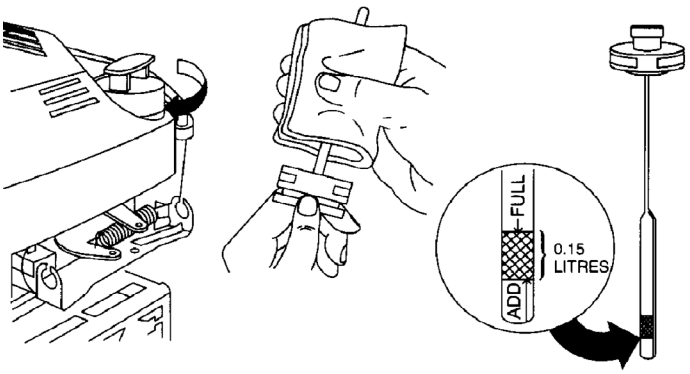
OIL:

CAUTION Engines fitted to rotary lawnmowers are shipped without oil. Check the engine manufacturers manual for oil grade details.

Before you use your lawnmower, every four stroke will require approximately 600 ml of engine oil in the sump. With the lawnmower in a level position,

1. Remove the oil dipstick.
2. Wipe the dipstick clean.
3. Fill to the full mark, pouring slowly - DO NOT OVERFILL. Then screw the dipstick securely back into place.

Note that if the engine is overfilled, it will smoke excessively or appear to be seized.



FUEL:

CAUTION Petrol vapour is highly flammable. Handle with extreme care. Store in approved containers.

Your engine will run best on fresh, clean unleaded petrol (91 octane). Use of unleaded fuel results in fewer combustion deposits, burns cleaner and gives longer valve life.

Do not fill the petrol tank too full to allow for fuel expansion. It is recommended that approximately 5mm to 10mm of tank space is left for this.

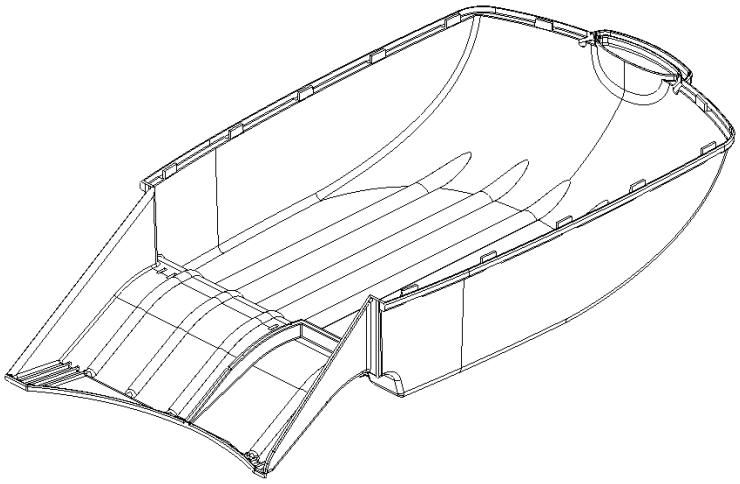
When handling fuel:

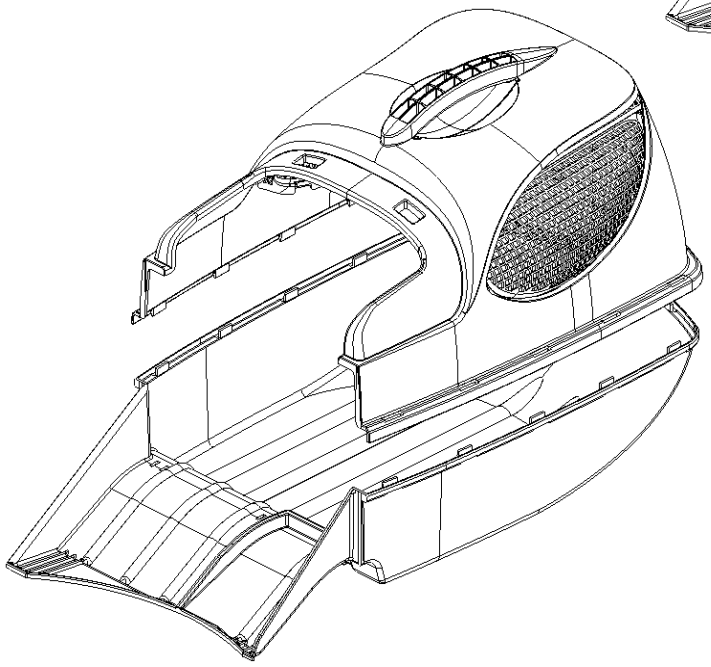
- Do not fill tank when the engine is running.
- Do not smoke or expose naked flame.
- Do fill tank in open well-ventilated area.
- Do wipe away any spills.
- Do move the mower away from any petrol fumes before starting engine.

Assembling the catcher, 500SF/650SF Series:

STEP 1

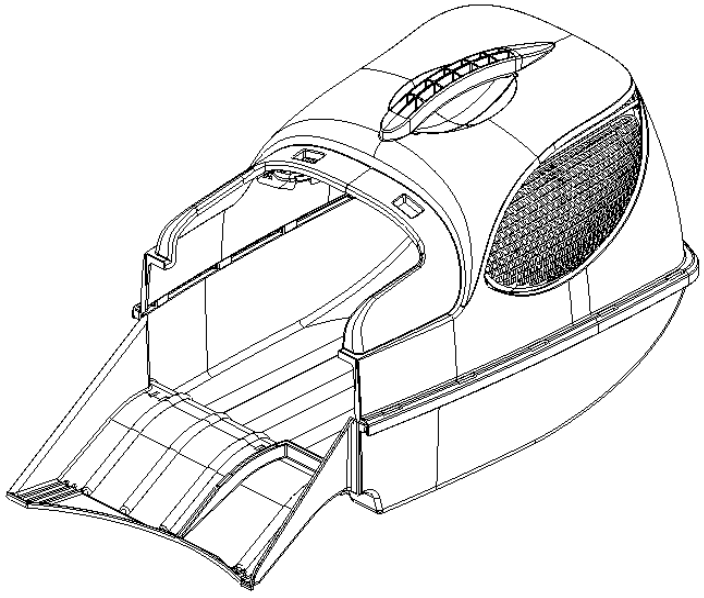
Place the base of the catcher onto a flat surface, a bench is ideal.





STEP 2

Tilting the top of the catcher forward - ease onto the base. Locate the front lugs and tilt carefully rearwards to align remaining lugs.



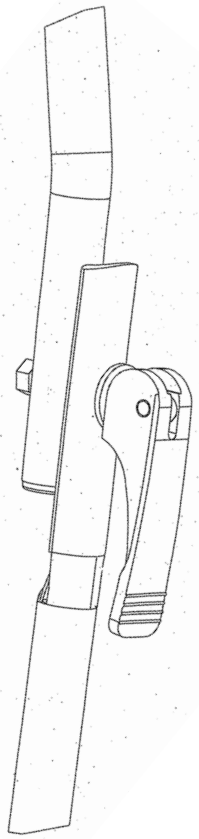
STEP 3

Ensure both halves are aligned and the lugs engaged. Clamp together the top and bottom halves (with firm downward hand pressure) to lock securely.

Handlebar folding instructions:

The handlebar assembly is supplied in the storage position for packaging purposes. The folding handle system allows for compact storage when not in use.

- Unfold the handle by lifting and turning it to its 'mowing' position.
- Lock the handlebar in this position before operating the mower by activating the locking lever. The locking lever can be locking in place at any point throughout its 360-degree movement.
- On models fitted with 'zone start' facility, pull the engine starter cord out carefully so that there is sufficient length to extend the handle fully without stretching the cord.



To change the handlebars back to the storage position, simply loosen the handle locking lever and rotate the upper handlebar forward over the mower body.

There are two locking levers on 500SF and 650SF models.

Handlebar Height adjustment instructions:

The height of the handlebar can be adjusted to various heights.
Lift the grass flap and secure it in the open position, loosen the four bolts two on each side holding the handle to the mower.

- The handle can now be adjusted to the correct height by moving it.
- Hold the handle in place and tighten the bolts to secure the handle in its new position.

Mulch & Catch models:

CAUTION Always wait until the engine has stopped and the blade has stopped rotating before fitting or removing the Mulcher plug.

The mulching lawnmowers have been assembled ready for mulching mode. They have the mulching plug inserted and the correct blade system fitted. Removal of the mulcher plug and fitting the catcher converts the mower to a catching model and vice versa.

Starting the lawnmower - cold starts:

⚠ CAUTION Never start or run the engine indoors or poorly ventilated areas, engine exhaust contains carbon monoxide gas, which can be fatal. Keep hands, feet, and clothing away from moving parts.

Open the fuel shut off valve (where fitted). Move the throttle control to choke / start position. For lawnmowers fitted with non-choke engines, the primer bulb must be firmly pressed three to four times after the throttle control lever has been moved to the run position.

1. Grasp the starter grip and pull slowly until resistance is felt and then pull the starter cord with a rapid, smooth movement to start the engine. Do not allow the cord to snap back.
2. For models without a 'zone start' feature, place your foot against the mower body then grasp the starter grip.
3. Repeat the starting procedure above if necessary.
4. When the engine starts, move the throttle to the run position and to the speed desired.
5. In the case of flooding occurring, move the throttle to the stop position, pull the starter cord 5 - 6 times, then move the throttle lever to the choke / start or run position and pull the starter cord as above.

Starting the lawnmower - hot starts:

Follow the above #1 to #5 steps for restarting after emptying catcher or short rest periods. A warm engine will usually start in the idle position. However, if it fails to start, follow the cold start procedure.

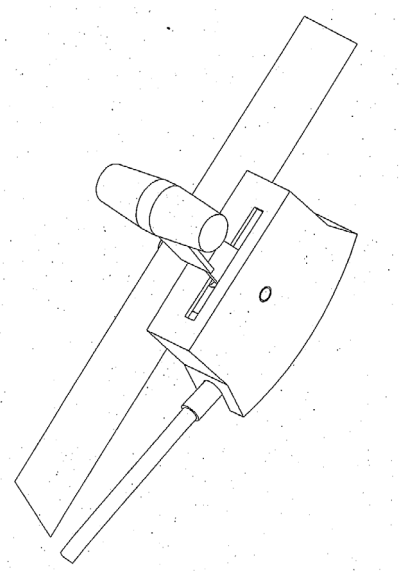
Stopping the engine:

To stop the engine, move the throttle control to the stop position. Turn the fuel shut-off valve (where fitted) to the close / off position when the mower is not in operation to prevent fuel leakage from the carburettor.

Throttle control lever:

The throttle control lever is located on the right hand handle for the 500SF / 650SF models.

The throttle lever is moved fully forward into the detented choke / start position to start a cold engine. The run position has a detented position for working (or governed) speed and a graduated quadrant slide allows for selected slower running speeds. Note that the engine speed dictates the speed and operation of the cutting system.



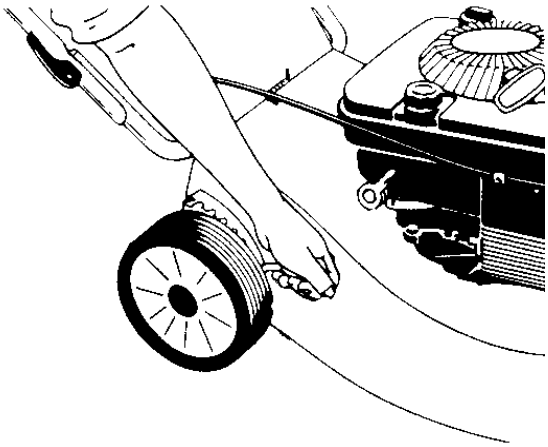
Zone Start handle:

Note that as soon as the engine is cranked the cutting blades rotate immediately. Models fitted with Zone Start allow effortless, trouble free, at the handle starting while keeping feet and hands away from the cutting mechanism and danger zones. To start simply pull the zone start handle firmly as you push the mower handlebar away.

Recoil start handle:

Refer to the engine manufacturer's owners' handbook for details.

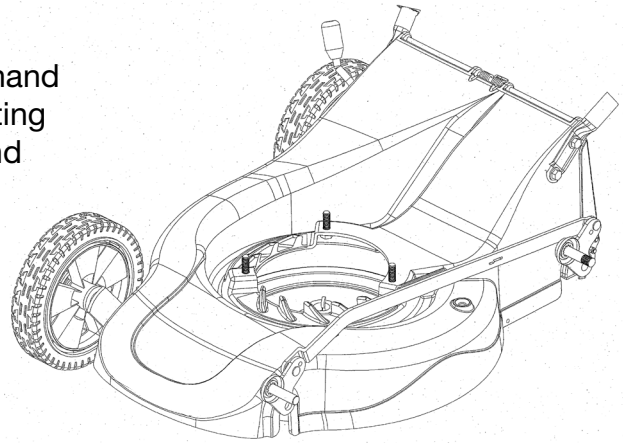
Cutting height adjustment:



The single lever height adjustment makes for easy change from one height setting to another. There are ten height of cut settings available (from 10 mm to 65 mm) and the most suitable height should be selected that best suits the grass and weather conditions. To adjust the height of cut setting, follow the steps below.

- Grip the height adjust lever by the black knob.
- Apply an outward force to the lever to disengage it from the quadrant rack setting.
- Holding the lever out, move the lever up or down the quadrant rack to the desired height of cut.
- Engage the lever into the quadrant rack by releasing the outward force.

Note that when using a mulching lawnmower, using the higher height settings will give the best mulching performance.



There are two holes in the axle bell cranks on the left hand side of the mower. The correct setting for the connecting rod link is to have the rear of the link in the top hole and the front of the link in the lower hole.

Grass Catcher:

⚠ CAUTION Always shut off the engine and ensure it has stopped before fitting or removing the grass catcher or raising the rear flap.

Your rotary lawnmower can be operated with the grass catcher fitted, or removed as a utility mower.
Note that if the lawnmower is used with the catcher removed, the rear flap must be fitted and located in the down / closed position. To fit the grass catcher, stop the engine and position the catcher on the ground behind the mower. Raise the rear flap and lift the catcher into position ensuring the catcher tongue is located over the rear axle. Slide the catcher forward and upward; lower the flap so that the lugs on the flap locate into the square holes on top of the catcher. Your catcher is now attached.

To remove the grass catcher, stop the engine, hold the catcher by its top handle raise the rear flap. Lift the grass catcher up and away from the lawnmower and return the grass flap to its down / closed position.

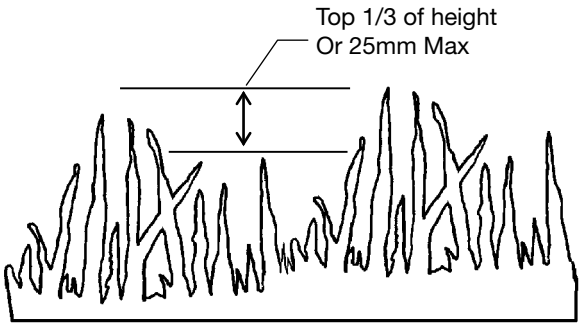
Avoid leaving the catcher in direct sunlight when not in use. The catcher will not deteriorate if stored wet but prolonged exposure to sunlight can cause premature UV breakdown. Dust and clippings will build up inside the catcher and on its venting screen, particularly during wet weather mowing. This debris will impede the function of the catcher so it should be removed by hosing out with water when necessary.

Mulching Models:

CAUTION Always wait until the engine has stopped and the blade has stopped rotating before fitting or removing the Mulcher plug.

Mulch mowing is recommended at the higher end of the height of cut settings to allow a good even cut and distribution of clippings through the lawn. Mulch mowing involves different mowing practices to conventional mowing and here are a few helpful guidelines to provide the best results with your mulching mower.

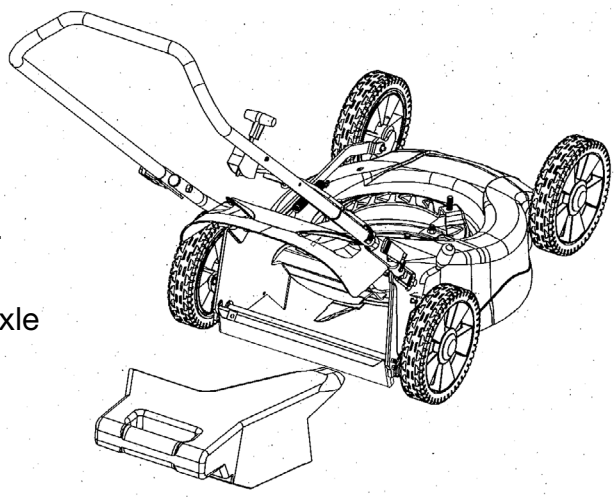
- Avoid mulching the lawn in wet conditions. Wet grass will build up on the inside of the body, fall off in clumps and not spread evenly into the lawn. The best time to mulch is in the late afternoon or early evening. By this time the grass is usually dry and the sensitive, newly cut grass is not exposed to the direct sunlight.
- Limit your ground speed to suit the conditions and to obtain the best finish and distribution. The slower the forward speed the better the finish



- Do not try to mulch on too low a height of cut setting. Remember the maximum cut should be 25 mm off the top of the grass or no more than one third of the grass blade height whichever is the lesser amount.
- Always mulch at maximum throttle setting. When engine speed is reduced or the workload is too much the blades will not mulch the grass efficiently resulting in a poor quality finish.
- Keep the blades sharp for optimum mulching performance and to reduce engine power loss and speed.
- Keep the underside of the lawnmower body clean so that the airflow is not restricted.
- If a trail of grass is visible, raise the cutting height of the mower.
- If the conditions for mulching are not ideal and / or there are trails of clippings visible after cutting, there are several steps that you can take. Convert your lawnmower back to catcher mode to remove some of the matted grass, re-mow over the clippings, raise the height of cut or rake up the clippings after mowing.
- It is recommended to vary the direction of mowing from week to week to prevent matting of the grass. One-week mow east to west, the next mow north to south.
- You may notice excess clippings being dropped during turning; these areas should be re-mow at the end to distribute properly.

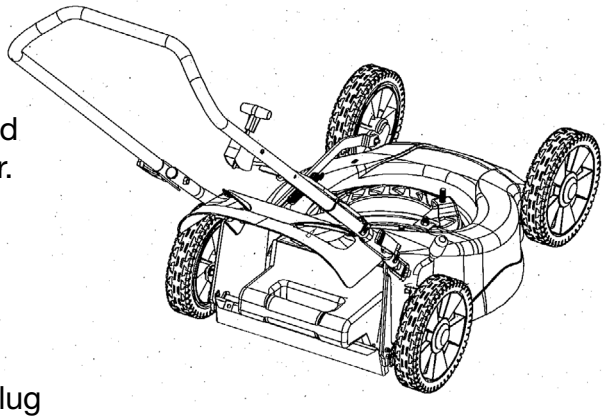
Fitting and removing the mulcher plug:

Fitting the plug



- Stop the engine.
- Make sure the discharge chute and underside of the mower body is clean.
- Lift the rear flap of the lawnmower and remove the catcher, if fitted.
- Grasp the Mulcher Plug by its handles and insert into the rear of the lawnmower ensuring it is positioned correctly.
- Guide the mulcher plug in over the rear axle and clip into position.
- Lower the rear flap.
- The lawnmower is now ready to use as a mulcher model.

Removing the plug:



- Stop the engine.
- Lift the rear flap of the lawnmower.
- Grasp the Mulcher Plug by its handles and lift clear of the rear axle of the lawnmower.
- Guide the mulcher plug out over the rear axle of the lawnmower.
- Lower the rear flap or fit the catcher as required.

Clean the underside of the mower body and mulcher plug as necessary.

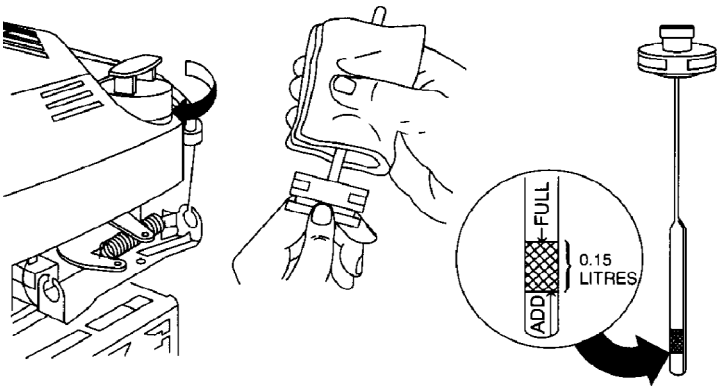
Engine:

Refer to the manufacturers operator owner manual for engine maintenance information.

Check engine oil level:

⚠ CAUTION Running engines, fitted to rotary lawnmowers, without sufficient oil can cause the engine to seize.

Periodically the oil level should be checked to ensure it is correct. Engine oil also requires changing after the initial first five hours of use, and then every 50 hours of normal use and 25 hours of heavy use thereafter. With the mower in a level position,



1. Remove the oil dipstick.
2. Wipe the dipstick clean replace and remove.
3. If the engine oil level is below the minimum mark on the dipstick, top up with the correct grade of engine oil to the full mark on the dipstick. DO NOT OVER FILL. Then screw the dipstick securely back into place.

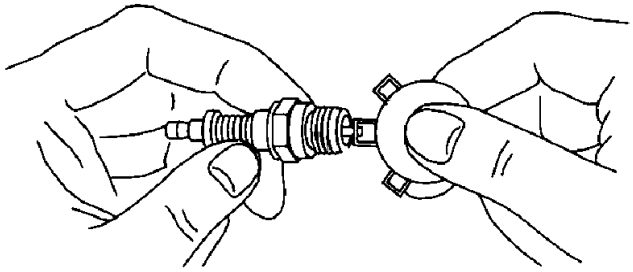
Note that if the engine is overfilled, it will smoke excessively or appear to be seized.

Clean the air cleaner:

Remove and clean the air filter cartridge at three monthly intervals or every 25 hours of normal use. The air filter cartridge may require servicing more often under dusty operating conditions. To service the air cleaner cartridge, follow the procedures detailed in the engine manual.

Check spark plug:

Clean and reset the spark plug gap every 25 hours of operation. Remember, in small engines, difficult starting and erratic running is most often attributable to a dirty, oily or carbonated spark plug. Do not file or sand blast the spark plug electrode but clean by scraping or wire brushing, then cleaning with a commercial solvent. Clean and reset the spark plug gap at 0.7 - 0.8mm (0.030”) every 100 hours of operation.
Always fit the recommended spark plug.



Rotating screen:

Through prolonged operation, the rotating screen may become clogged with grass and debris. Clean the screen in line with the engine manufacturers recommendations to avoid over heating and possible engine damage.

Throttle control:

Lubricate the cable every 25 hours of mowing by applying a light oil to the top of the inner wire and allowing it to gravity drain down the inside. The throttle control lever quadrant should have medium grease smeared over it to protect it from corrosion and to give a smooth operation.

Fasteners and linkages:

Check that all nuts, bolts, pins and linkages are secured correctly in place and are in good condition.

Blade Care:

Check the condition of the blades, bolts and cutter assembly regularly. Remember that badly worn blades will affect grass cutting, catcher fill and cause excessive mower vibration.

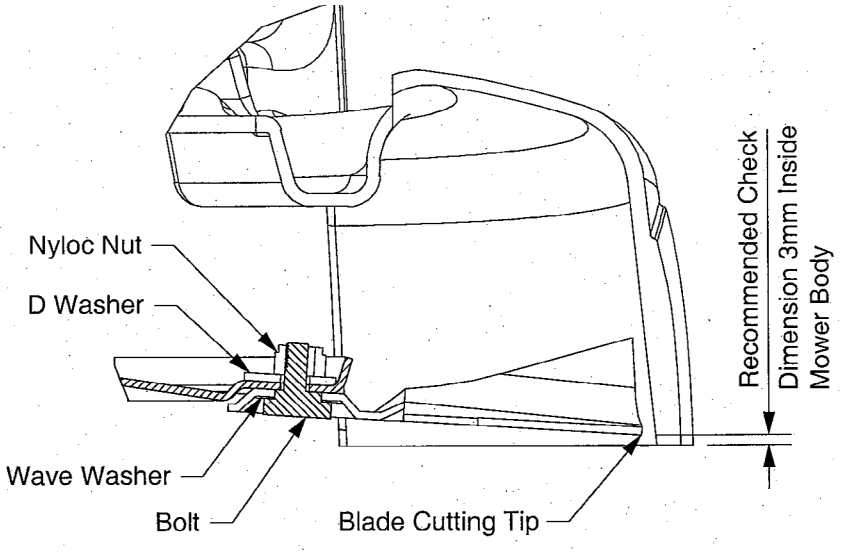
Change Worn or Damaged Blades:

It is recommended that you use an authorised Service Agent for any replacement, sharpening or balancing blade work. Always fit a complete set of blades and fasteners to maintain balance

Disc blade assembly:

CAUTION Always disconnect the spark plug lead when working on the disc blade assembly. This will prevent accidental starting of the engine.

To maintain balance, always fit a complete set of blades and fasteners.



1. Set the lawnmower to highest cutting height.
2. Lift the rear flap and prop open to allow access to the blade area.
3. Remove each blade, blade retaining bolt, nut, washer and discard.
4. Fit the new blades, blade bolts, washer and nuts.
5. Torque the blade nuts (20 Nm) and check each blade is free to move after lightening.
6. Remove the prop from the rear flap and replace the spark plug cable.

If the disc is damaged, it will need replacing as follows:

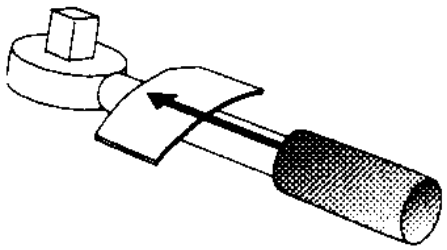
1. Tip the lawnmower with its spark plug upward - refer to engine manual.
2. Remove the centre bolt; pull the disc blade assembly off the three locating pins on the boss.
3. Assemble in reverse order and torque to 50 Nm.

Bar blade assembly:

1. Tip the lawnmower with its spark plug upward - refer to engine manual.
2. Remove the centre bolt and spring washer; pull the blade and carrier off the engine shaft.
3. Either sharpen and balance the old blade or fit a new one.
4. Grease the engine shaft; assemble in reverse order ensuring the drive key is located correctly.
5. Torque the centre bolt to 50 Nm.

Blade Replacement Torque Settings:

Centre Bolt 50 Nm
Flail Blade Bolts 20 Nm (free to move)



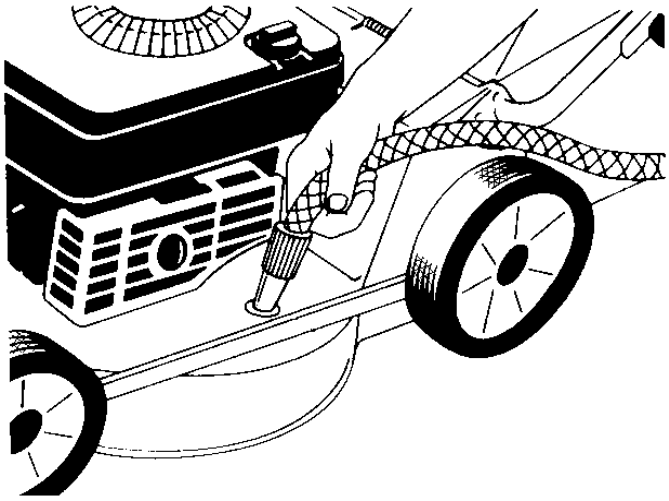
Carburettor Adjustment:

Check your engine Manufacturers Maintenance Instructions when carburettor adjustment is required to compensate for changes in fuel, temperature, altitude or load.

Cleaning the Mower Body:

There is a direct relationship between the lawnmower's life and the care and attention given to the lawnmower both during and after operation. After use it is important that the lawnmower is thoroughly cleaned down and inspected so that it will be in good working order the next time it is required. Disconnect the spark plug lead and thoroughly clean the engine, underside of the chassis, wheels and grass catcher.

⚠ CAUTION Do not use a water hose around the engine as this may contaminate the fuel or enter the ignition system and result in poor engine performance and starting problems.



Your rotary lawnmower features a wash nozzle for easy cleaning of the underside of the body. Simply run the lawnmower at a moderate speed, place a garden hose into the wash nozzle and turn on the water supply for two to three minutes. The action of the rotating blade system will dislodge most grass and debris build up.

Cleaning the Catcher:

Simply hose out the catcher and screen after each use to ensure maximum mower performance and catcher fill.

Cleaning the Catcher:

⚠ CAUTION Care should be used when cleaning around the muffler, ensure that the muffler is cool enough to touch before cleaning.

Simply hose out the catcher and screen after each use to ensure maximum mower performance and catcher fill.

Storage:

After each mowing season or if the lawnmower is not going to be used for 30 days or more, it is recommended that

1. The engine oil should be changed.
2. All fuel should be removed.

Run the engine until it is warm and drain the engine oil and refill with the correct grade to the required level.
The fuel shut off valve should be closed off (where fitted) then remove all fuel from the carburettor, fuel line and tank to prevent the formation of gum like deposits The lawnmower should then be started up and run until all of the fuel left in the system is used.

Remove the spark plug and pour 15 cc of engine oil into the cylinder, crank slowly to distribute the oil and replace the spark plug. Store the lawnmower in a clean dry area away from direct sunlight, as this will have an aging effect on the plastic catcher assembly and other plastic component.

Always store the mower on a flat, level surface.

FAULT	POSSIBLE CAUSE	REMEDY
Engine does not start, runs erratically or experiencing power loss.	Throttle not in choke / start position.	Move throttle to choke / start position.
	Fuel tank empty or fuel shut off valve closed.	Fill tank with recommended fuel grade and open fuel shut-off valve.
	Air cleaner element is dirty.	Service or replace air cleaner.
	Spark plug loose.	Tighten spark plug.
	Spark plug cable disconnected.	Refit cable to spark plug.
	Defective spark plug.	Replace damaged spark plug.
	Spark plug gap incorrect	Replace damaged spark plug. Refer to Engine Manual.
	Carburettor is flooded with fuel.	Move throttle to ‘stop’ position, pull the starter cord 5 - 6 times, move throttle to ‘run’ and start engine.
	Dirt, water or stale fuel in the tank	Drain and clean fuel tank. Refill with clean fresh fuel before starting.
	Vent hole in the filler cap is blocked	Clean or replace filler cap.
Engine skips at high speed.	Spark plug gap too small.	Refer to engine manual.
Engine idles Poorly.	Blocked engine cooling fins and air passages.	Remove debris from around engine.
	Air cleaner element is dirty.	Service or replace air cleaner.
Excessive vibration and / or noise.	Cutting assembly is loose.	Refer to Blade Care / Changing Blades.
	Cutting assembly is unbalanced.	Refer to Blade Care / Changing Blades.
Oil leaks from muffler or air cleaner.	Engine oil sump over filled.	Check oil level and drain excessive oil.
	Mower tipped or handled incorrectly.	Check oil level, air cleaner and spark plug and correct as necessary.

If fault persists, consult your authorised Service Agent.

WARRANTY:

The seller warrants this rotary lawnmower to be free from defects in material and workmanship. Subject to the following conditions, the rotary lawnmower comes complete with the following comprehensive parts and labour warranty.

DOMESTIC - 2 YEARS FROM THE DATE OF PURCHASED
COMMERCIAL / HIRE - 3 MONTHS FROM THE DATE OF PURCHASED

1. This warranty does not include the engine and batteries (if fitted), which are covered by separate manufacturers warranties.

2. This warranty excludes normal wear and tear, misuse, neglect, accidental damage or defects arising from failure to comply with the instructions as outlined in this Owners Manual. Wearing parts such as blades, blade bolts, belts and spark plugs, which can be subjected, to use beyond their normal working capacity are also excluded.

3. This warranty is void if parts other than genuine Spare Parts have been used or if repairs have been carried out by other than authorized Service Agents.

4. This warranty does not cover the costs of transportation of any part(s) but does cover the labour / part costs incurred in repairing or replacing any defective part(s).

5. The seller reserves the right to inspect any faulty part(s) in order to determine the validity of the warranty claim or for any other reason.

6. The seller has no liability for any incidental, consequential or special damages and / or expenses resulting from any defect in their product.

These conditions do not affect the purchasers' statutory rights under the laws of the place, state or country of purchase. If warranty service is required, contact your nearest authorised Service Agent.

SPARE PARTS:

CAUTION Always use genuine spare parts to ensure safety and proper performance. Substitute parts can be disappointing dangerous, and will invalidate the machine warranty

When ordering spare parts, please give the following information:

* PART NUMBER.
* MACHINE TYPE/MODEL.
* DESCRIPTION AND QUANTITY REQUIRED.
* BATCH AND SERIAL NUMBER.

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